

REMARKS

The Office Action mailed October 4, 2005, has been received and reviewed. Claims 1 through 4, 6 through 12, and 14 through 17 are currently pending in the application. Claims 1 through 4, 6 through 12, and 14 through 17 stand rejected. Applicants have amended claims 11 and 12, and respectfully request reconsideration of the application as amended herein.

Claim Objections

Claim 11 is objected to due to informalities in the claim language. Applicants have amended claim 11 in accordance with the Examiner's suggestion and respectfully request reconsideration thereof.

35 U.S.C. § 102(e) Anticipation Rejections

Anticipation Rejection Based on U.S. Patent No. 6,081,029 to Yamaguchi

Claims 1 through 4, 10 through 12 and 14 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Patent No. 6,081,029 to Yamaguchi (hereinafter "Yamaguchi"). Applicants respectfully traverse this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Independent claim 1 of the presently claimed invention is directed to a lead frame. The lead frame of claim 1 comprises: an outer frame portion; a plurality of discretely defined leads, each of the plurality of discretely defined leads being cantilevered and extending inwardly from the outer frame portion, *wherein at least one discretely defined lead includes: a first bonding region, a second bonding region, and a severance region located between the first bonding region and the second bonding region, the severance region being configured to facilitate separation of the first bonding region from the second bonding region.*

Applicants submit that Yamaguchi fails to describe all of the limitations of the presently claimed invention.

With respect to claims 1-4, the Examiner cites Yamaguchi as disclosing “a plurality of discretely defined leads 12 and including at least one lead having, a first bonding region (i.e. to the left of the notch), a second bonding region (i.e. to the right of the notch), and a severance region (i.e. notch) located between the first bonding region and the second region, the severance region being configured to facilitate separation of the first bonding region from the second bonding region (see col. 18, lines 1-67, col. 19, lines 1-67, and col. 20, lines 1-47; figs. 14a, 14b, 15a, 15b, and 16-18).” (Office Action, page 3).

However, Applicants submit that Yamaguchi fails to describe a first bonding region, a second bonding region, and a severance region being configured to facilitate separation of the first bonding region from the second bonding region. While the Examiner asserts that the area to the “right of the notch” is a bonding region, Applicants find no such teaching in Yamaguchi, but instead find that the description of Yamaguchi is in contrast to the Examiner’s assertion. For example, Yamaguchi appears to only describe a single bonding region for a given lead (i.e., that to which the wire bond 16 is coupled as shown in FIGS. 15a, 15b, and 17). This is clearly supported by the description in Yamaguchi which states that “[o]n the upper surface of each signal-connecting lead 12, two grooves are formed to extend vertically to the direction in which the signal-connecting lead extends,” and that “the electrode pads 15a of the semiconductor chip 15 are connected to the signal-connection leads 12 with metal fine wires 116 at the part thereof interposed *between the two grooves*.”(Col. 18, lines 12-14, and lines 19-22, emphasis added).

Moreover, at column 18, lines 49 -51, Yamaguchi discusses the practice of excising the outer frame from the leads, stating that “the connection between the outer frame 46 and the signal-connecting leads 12 is cut off, thereby removing the outer frame 46.” In other words, the outer frame portion 46 (the portion to the right of the notch) is clearly not considered by Yamaguchi to be a bonding region, but rather is a structural component that supports the individual leads during certain manufacturing processes and which is removed at an appropriate time during manufacturing. The outer frame portion 46 is not described by Yamaguchi as providing a bonding region or acting as an electrical connection point at any time during the

manufacture of the semiconductor device. Thus, Applicants submit that Yamaguchi fails to describe two bonding regions and a severance region being configured to facilitate separation of the two bonding regions as recited by claim 1 of the presently claimed invention.

As such, Applicants submit that claim 1 is clearly allowable over Yamaguchi. Applicants further submit that claims 2-4, 10-12 and 14 are also allowable as being dependent from an allowable base claim, as well as for the additional patentable subject matter introduced thereby.

With respect to claim 3, Applicants submit that Yamaguchi fails to include a lead frame, wherein each of the plurality of discretely defined leads includes a first bonding region, a second bonding region, and a severance region configured to facilitate separation of the first and second bonding regions.

Applicants, therefore, respectfully request reconsideration and allowance of claims 1-4, 10-12 and 14.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on U.S. Patent No. 6,081,029 to Yamaguchi as applied to claim 1 above, and further in view of U.S. Patent No. 6,399,415 to Bayan et al.

Claims 6 through 9, and 15 through 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamaguchi (U.S. Patent No. 6,081,029) as applied to claim 1 above, and further in view of U.S. Patent No. 6,399,415 to Bayan et al. (hereinafter, "Bayan"). Applicants respectfully traverse this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

Independent claim 6 of the presently claimed invention is directed to a lead frame strip,

the lead frame strip comprising: a plurality of longitudinally arranged lead frames, each lead frame including an outer frame portion *bearing a plurality of inwardly extending, cantilevered leads, each lead of the plurality having thereon at least two longitudinally spaced locations separated by a severance region comprising a notch extending laterally across each lead.*

The Applicants submit the 35 U.S.C. § 103(a) obviousness rejection of claim 6 is improper because Yamaguchi and Bayan fail to teach or suggest all the claim limitations.

With respect to claim 6, the Examiner cites Yamaguchi as disclosing “a lead frame including an outer frame portion bearing a plurality of inwardly extending, cantilevered leads each lead of the plurality having thereon at least two longitudinally spaced locations separated by a severance region comprising a notch extending laterally across each lead (see col.18, lines 1-67, col. 19, lines 1-67, and col. 20, lines 1-47; figs. 14a, 14b, 15a, 15b, and 16-18).” (Office Action, page 4).

The Examiner cites Bayan disclosing a plurality of longitudinally arranged lead frames, wherein each lead frame includes an outer frame portion bearing a plurality of inwardly extending, cantilevered leads. The Examiner then states that “one skilled in the art at the time of the invention would readily recognize having a plurality of lead frames wherein each lead frame includes an outer frame portion bearing a plurality of inwardly extending cantilevered leads, since the plurality of lead frames would facilitate mass production of IC packages at the same time while reducing the time to [sic] needed to produce the plurality of IC packages as taught by Bayan.” (Office Action, pages 4 and 5). Applicants respectfully traverse this rejection.

Applicants submit that Yamaguchi and Bayan do not teach or suggest a plurality of longitudinally arranged lead frames, each lead frame including an outer frame portion bearing a plurality of *inwardly extending, cantilevered leads, each lead of the plurality having thereon at least two longitudinally spaced locations separated by a severance region comprising a notch extending laterally across each lead.*

With respect to Yamaguchi, the leads that are cited by the Examiner as having a laterally extending notch are described by Yamaguchi as being “support leads 47” which structurally connect the die paddle 13 and the outer frame portion 46. (See, e.g., FIG. 14a). Thus, these support leads are clearly are not *inwardly extending, cantilevered* leads. Moreover, Yamaguchi

does not provide any specific teaching regarding the configuration of the “signal conducting leads 12” which might be considered as being inwardly extending, cantilevered leads.

Bayan describes a lead frame 204 having a plurality of leads or contacts 209 and a die attach pad 207. “Tie bars 240 are also defined to support the desired surface features.” (Col. 5, lines 17-18). However, Bayan does not teach or suggest a plurality of inwardly extending, cantilevered leads, each lead of the plurality having thereon at least two longitudinally spaced locations separated by a severance region comprising a notch extending laterally across each lead.

As such, Applicants submit that claim 6 is clearly allowable because Yamaguchi and Bayan to teach or suggest all of the limitations of claim 6. Applicants further submit that claims 7-9 and 15-17 are also allowable as being dependent from an allowable base claim, as well as for the additional patentable subject matter introduced thereby.

With respect to claim 15, Applicants submit that Yamaguchi and Bayan fail to teach or suggest that each of the at least two longitudinally spaced locations of each lead is configured as a bonding region. As discussed hereinabove with respect to claim 1, Yamaguchi fails to teach or suggest such subject matter. Similarly, Bayan fails to teach or suggest such a configuration.

Applicants, therefore, respectfully request reconsideration and allowance of claims 6-9 and 15-17.

ENTRY OF AMENDMENTS

The amendments to claims 11 and 12 above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add any new matter to the application. Further, the amendments do not raise new issues or require a further search.

CONCLUSION

Claims 1 through 4, 6 through 12 and 14 through 17 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, the Examiner is respectfully invited to contact Applicants' undersigned attorney.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Bradley B. Jensen", followed by a horizontal line extending to the right.

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